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Abstract

Aim – This study extends existing research by focusing specifically on the perceptions of hotel employees, a crucial yet often overlooked group of stakeholders in the adoption of new technologies within the hotel sector. The objective of this research is to investigate the perceptions of hotel employees in Hong Kong regarding the implementation of Metaverse hotels. This study emphasizes their evaluations of the strengths, weaknesses, opportunities, and threats associated with these establishments through a SWOT analysis. Ultimately, the study aims to provide recommendations for addressing technological challenges, supporting employees during the transition, and facilitating adaptation across the industry. Design/Methodology/Approach – A convenience and purposive sampling method is employed to investigate 20 participants, comprising hotel staff from various departments in Metaverse hotel in Hong Kong. This study adopts a qualitative research design, utilizing semi-structured interviews to gather in-depth insights into the perceptions of Metaverse hotel among these employees. Purposive sampling ensures that participants have relevant experience and familiarity with VR/AR technologies.   Interviews, each lasting 45-60 minutes conducted in person, with informed consent obtained beforehand. Findings – The exploration of hotel employees' perceptions of Metaverse hotels in Hong Kong underscores the innovative potential of these establishments to enhance operational efficiency and guest engagement, while also offering new training opportunities and streamlining daily tasks. However, employees express concerns about the potential erosion of personal interactions, which are crucial to the hospitality experience, and foresee significant technical and integration challenges. Despite these drawbacks, Metaverse hotels present distinctive opportunities for market differentiation, appealing to tech-savvy guests and generating new revenue streams that contribute to industry growth. Nonetheless, potential threats such as guest skepticism and challenges in industry adaptation highlight the necessity for cautious implementation and robust privacy measures. Balancing these aspects, strengths, weaknesses, opportunities, and threats—will be pivotal for the successful integration of Metaverse technologies into the hotel industry. Theoretical/Practical implications – Participants recognized that Metaverse hotel could offer various potential benefits for both employees and businesses, such as enhanced operational efficiencies and new opportunities for guest engagement. Understanding the perceptions of hotel staff towards the Metaverse carries significant real-world implications for shaping policies, practices, and technologies that facilitate its operational success and market acceptance. Leveraging these insights enables the optimization of Metaverse's advantages while mitigating associated risks and drawbacks. This study advances existing research by focusing specifically on the perceptions of hotel employees, a crucial yet often neglected group of stakeholders in the adoption of new technologies within the hospitality sector. By understanding the perspectives of hotel employees, this research provides valuable insights into the practical challenges and benefits of implementing Metaverse technologies in hotel industry. Originality/value – The Metaverse hotel is still relatively new and evolving, making it crucial to conduct research to understand how hotel staff perceive it. However, there is limited research specifically focusing on the perceptions of hotel employees regarding Metaverse hotels. This gap highlights the need for a comprehensive investigation into how

employees perceive the strengths, weaknesses, opportunities and threats of implementing Metaverse in hotel.

Keywords: Metaverse Technology, SWOT, Technology Acceptance, User Experience, Virtual Reality

1. Introduction

As the hospitality industry stands on the brink of a new technological era, it is imperative to understand the perceptions and concerns of those at the forefront of delivering guest experiences—hotel employees. This research aims to explore their views on Metaverse hotel, providing a foundation for further exploration and practical considerations in harnessing the potential of VR/AR technologies in the hospitality sector.   The hospitality industry has consistently been at the forefront of adopting new technologies to enhance guest experience and operational efficiency. The advent of the Metaverse—a collective virtual shared space created by the convergence of enhanced physical reality and persistent virtual space—presents a new frontier for innovation in this sector. Metaverse technologies, particularly VR and AR, can offer guests unique experiences such as virtual tours, VR-based room previews, and AR-enabled guest services. These innovations have the potential to set Metaverse hotels apart from traditional hotels by providing novel and engaging experiences that cater to tech-savvy guests and business travelers seeking cutting-edge amenities.

Despite the promising prospects, significant challenges accompany the implementation of Metaverse technologies in hotels. Concerns about the loss of personal interactions, the technical demands of maintaining VR/AR systems, and the high initial costs pose considerable obstacles. Additionally, employees' adaptation to new technologies and the potential impact on their job roles and security are critical factors that need to be addressed. Exploring hotel employees' perspectives on these issues is crucial for the successful implementation and integration of Metaverse technologies in the hospitality industry.

Previous studies have examined the impact of digital technologies on various aspects of the hospitality sector, including customer satisfaction, operational efficiency, and employee roles. However, limited research specifically focuses on the perceptions of hotel employees regarding Metaverse hotels. This gap underscores the need for a comprehensive investigation into how employees perceive the advantages, challenges, and implications of integrating Metaverse technologies into hotels. By addressing this gap, the current study aims to provide valuable insights that can inform future research and practical implementations for the further development of the hospitality industry.

The objective of this research is to analyze the perceptions of hotel employees in Hong Kong regarding the implementation of Metaverse hotels. This study emphasizes their evaluations of the strengths, weaknesses, opportunities, and threats associated with these establishments through a SWOT analysis. The research question guiding this investigation is: How do hotel employees in Hong Kong perceive Metaverse hotels, particularly in terms of strengths, weaknesses, opportunities, and threats, as assessed through a SWOT analysis?

Research Questions:

1. To investigate the perceptions of hotel employees in Hong Kong concerning the concept and implementation of Metaverse hotels, including their evaluations of the strengths, weaknesses, opportunities, and threats associated with such establishments through a SWOT analysis.

2. To attain a comprehensive understanding of the implications of Metaverse hotels for the hospitality industry and to provide practical insights into the effective adoption of this technology.

2. Literature Review

2.1. The Evolution of Technology in the Hospitality Industry

The hospitality industry has continuously embraced technological innovations to enhance guest experiences and improve operational efficiency. From the introduction of online booking systems and digital check-ins to the implementation of mobile concierge services, technology has profoundly reshaped hotel operations and guest interactions (Buhalis & Law, 2008). The latest innovation poised to revolutionize the industry is the emergence of Metaverse technologies, particularly virtual reality (VR) and augmented reality (AR). Metaverse, a persistent virtual environment, offers immersive experiences through VR and AR technologies (Mystakidis, 2022). Within hospitality, Metaverse hotels provide virtual tours, immersive guest experiences, and enhanced service delivery via digital means (Gursoy, Chi, & Chi, 2021). These technologies enable guests to explore hotel facilities, engage in virtual events, and interact with digital avatars of staff, potentially transforming the delivery and experience of hospitality services. Virtual and augmented reality technologies offer distinctive opportunities for the hospitality industry. VR, for instance, facilitates immersive experiences such as virtual tours of hotel rooms and facilities, allowing potential guests to familiarize themselves with accommodations before making a booking (Guttentag, 2010). AR enhances on-site experiences by overlaying digital information onto the physical environment, offering interactive guides and personalized services (Cranmer, Jung, & Dieck, 2018). These technologies significantly augment guest engagement and satisfaction by providing novel and interactive experiences that traditional methods cannot achieve.

2.2. Employee Perspectives on Technological Integration

Employees play a critical and multifaceted role in the successful implementation of new technologies within the hospitality industry. Research underscores the pivotal importance of actively involving employees throughout the adoption process to facilitate smooth integration and foster acceptance (Wang & Qualls, 2007). Engaging employees early in the technology deployment phase not only enhances their understanding but also cultivates a sense of ownership and commitment to the changes introduced. Training and development programs emerge as indispensable tools in preparing staff to effectively utilize new technologies (Kim, Lee, & Law, 2008). These initiatives are crucial in equipping employees with the necessary skills and competencies to leverage technological advancements optimally. By investing in comprehensive training, hospitality organizations can mitigate resistance to change and empower employees to embrace new roles and responsibilities in a digitally transformed environment. However, despite the potential benefits of technological integration, concerns persist regarding job security and evolving job roles in the face of automation and digitalization trends (Baum, 2015).

2.3. Concerns About Personal Interactions in the Integration of Metaverse Technologies in Hospitality

In the context of integrating Metaverse technologies into hotels, a prominent concern revolves around the potential diminishment of personal interactions, a cornerstone of traditional hospitality services. The hospitality industry prides itself on delivering high levels of personalized service and human engagement, attributes that are fundamental in shaping memorable guest experiences (Tussyadiah & Park, 2018). These interactions not only enhance guest satisfaction but also foster guest loyalty over time (Ivanov, Webster, & Berezina, 2017). The introduction of Metaverse technologies introduces a paradigm shift by emphasizing virtual interactions mediated through digital interfaces. While these technologies offer novel opportunities for guest engagement and operational efficiencies, they also pose challenges in maintaining the authenticity and warmth associated with face-to-face interactions. The reliance on virtual platforms for guest interactions may potentially create a more impersonal environment within hospitality settings (Ivanov, Webster, & Berezina, 2017). This shift raises concerns about whether virtual interactions can adequately replicate the nuanced interpersonal dynamics and intuitive responsiveness inherent in traditional hospitality encounters. Moreover, the

perceived loss of personal interactions in favor of virtual engagement strategies may influence guests' perceptions of service quality and overall satisfaction. Guests accustomed to personalized interactions may feel disconnected or less valued if their experiences are predominantly mediated through digital interfaces (Tussyadiah & Park, 2018). This potential shift in guest experiences underscores the importance of striking a balance between leveraging technological advancements and preserving the human touch that defines hospitality excellence.

2.4. Adaptation of Metaverse Technologies in Hospitality

Guest acceptance is crucial for the success of Metaverse hotels, with privacy, security, and the unfamiliarity of VR/AR technologies being major concerns (Webster & Ivanov, 2020). Transparent communication about data protection and user-friendly interfaces can help build trust and comfort. Comprehensive onboarding and customer support can further enhance user experience. The rapid advancement of VR/AR technologies poses challenges for the hospitality industry, requiring significant investment in updates, maintenance, and staff training (Buhalis & Leung, 2018). The industry must remain agile and adaptable to keep up with technological trends. Metaverse technologies offer opportunities to enhance guest experiences, improve efficiency, and drive business growth. They can provide unique, immersive experiences and streamline operations. However, implementation is resource-intensive, and maintaining the personal touch in service is essential. Balancing technological innovation with personalized service is key to guest satisfaction.

2.5. Challenges of Integrating Virtual and Augmented Reality Technologies in the Hospitality Industry

The initial capital investment required for the procurement of VR and AR equipment is considerable, posing a financial hurdle for many establishments. Furthermore, the possibility of technical malfunctions or glitches remains a significant concern, as such issues can severely disrupt the guest experience and potentially tarnish the hotel's reputation (Jung, tom Dieck, Lee, & Chung, 2016). Beyond the technical and financial aspects, the successful implementation of VR and AR technologies necessitates a seamless integration with existing hotel operations. This process involves not only the physical installation of new systems but also the alignment of these technologies with the hotel's delivery service model. Achieving this integration requires detailed planning to ensure that the new technologies enhance rather than hinder operational efficiency. Additionally, comprehensive training programs for hotel staff are imperative. Employees must be well-versed in both the operational aspects of VR and AR technologies and in troubleshooting potential issues to maintain a smooth and satisfactory guest experience (Guttentag, 2010). Therefore, while the potential benefits of VR and AR in enhancing guest experiences and operational efficiency are significant, the complexities involved in their implementation must be carefully managed to realize these advantages.

2.5. The Differentiation and Revenue Potential of Metaverse Hotels

Metaverse hotels can distinguish themselves from traditional hospitality by offering unique and immersive experiences through virtual reality (VR) and augmented reality (AR). These technologies enhance the guest experience by creating interactive and personalized environments, appealing particularly to tech-savvy guests, younger travelers, and business professionals (Tussyadiah, Wang, & Jia, 2017). Beyond attracting a new demographic, Metaverse technologies enable new revenue streams that traditional hotels might struggle to replicate. Virtual event hosting allows hotels to reach global audiences, expanding market reach for business conferences and workshops. Additionally, VR room upgrades can justify higher rates by offering virtual reality simulations of different environments or customized themes. AR-guided tours provide interactive explorations of the hotel's amenities and surroundings, enhancing guest experiences and fostering local business collaborations (Pantano & Di Pietro, 2013).

2.6. Balancing Digital Advancements and the Human Touch in Hospitality

The intersection of user experience and the traditional human touch is a pivotal aspect of modern hospitality management. Digital advancements, such as automated check-ins, AI-driven customer service, and immersive virtual reality experiences, hold the promise of significantly enhancing interactions between guests and hotel services. However, maintaining the personal touch that fundamentally defines the hospitality industry remains crucial. Ivanov and Webster (2017) emphasize that "while digital advancements promise enhanced interactions, maintaining the personal touch that defines hospitality remains crucial." This assertion underscores the delicate balance that must be achieved to ensure that technological innovations do not eclipse the essential human elements of service. Research indicates that guests often appreciate the convenience and efficiency provided by technological solutions. Automated services can reduce waiting times, streamline processes, and provide immediate access to information, all of which contribute to a more seamless and efficient guest experience (Bilgihan, Okumus, & Cobanoglu, 2013). However, these benefits come with the risk of diminishing the personalized interactions that many guests value highly. Studies suggest that while guests welcome the convenience of technology, the absence of human interaction can detract from their overall experience. Ivanov and Webster (2017) found that the human touch is integral to creating memorable and emotionally engaging guest experiences, which purely technological interactions cannot replicate. The importance of balancing technology with personal service is further highlighted by Tussyadiah and Park (2018), who state that "guests appreciate technological conveniences but emphasize the importance of personal interactions with hotel staff, highlighting the need for a balance between technology and human service." This balance is critical to ensuring guest satisfaction and loyalty. Personalized interactions with hotel staff can provide a sense of warmth and hospitality that automated systems lack. For instance, a friendly conversation with a concierge, personalized recommendations from staff, or the warm greeting from a front desk clerk can significantly enhance the guest experience and foster a sense of connection and care (Gretzel, Sigala, Xiang, & Koo, 2015).   Maintaining this balance requires a strategic approach. Hotels must carefully integrate technology in ways that complement and enhance human service rather than replace it. For example, technology can be used to handle routine tasks, allowing staff to focus on more personalized aspects of service. Automated check-ins can free up-front desk staff to engage more deeply with guests, offering personalized assistance and building rapport (Buhalis & Sinarta, 2019). Similarly, AI-driven systems can provide staff with detailed guest preferences and history, enabling more tailored and personalized service interactions. Moreover, training programs for hotel staff should emphasize the importance of maintaining the human touch in an increasingly digital environment. Staff should be equipped not only with the skills to use new technologies effectively but also with the interpersonal skills necessary to deliver exceptional personal service. Continuous professional development and feedback mechanisms can help ensure that staff remain adept at balancing technological efficiency with personalized guest interactions (Kim, Lee, & Law, 2008).

3. Methodology

3.1. Figures, Tables and Schemes

Thematic analysis is a method for identifying, analyzing, and reporting patterns (themes) within data, providing a systematic way to organize and describe datasets (Braun & Clarke, 2006). This approach is often used to interpret written materials such as interview transcripts (Walters, 2016). It is particularly useful for exploring the views of various research participants, highlighting similarities and differences, and uncovering unexpected insights. In this study, thematic analysis was applied to examine the perspectives of 20 respondents, allowing for a comprehensive summary by focusing on both commonalities and distinctions.

3.2. Sampling Method

This study employed non-probability purposive sampling, selecting participants based on their relevant knowledge. The Hong Kong Polytechnic University was chosen as it was the first to implement the Metaverse Hotel. Employees were selected from various departments. Table 1 outlines the demographic characteristics and employment statuses of the hotel employees.

3.3. Data Collection Technique

Semi-structured interviews were used to collect detailed information from key respondents about their personal experiences, attitudes, perceptions, and beliefs regarding the research topic (De Jonckheere & Vaughn, 2019). These interviews were conducted within a qualitative research framework, with questions developed by the authors based on a review of relevant literature.

3.4. Data Analysis

The analysis followed Braun and Clarke's (2006) thematic analysis framework, strictly adhering to their prescribed phases. After conducting the interviews, the transcribed data were repeatedly read to note initial ideas, completing the familiarization phase. In the second phase, the researchers systematically coded interesting features across the dataset, organizing data related to each code. During the third phase, data relevant to each potential theme were gathered and organized into potential themes. In the fourth phase, themes were reviewed and refined using the collated codes. In the fifth phase, themes were defined and named. The final phase involved preparing a scientific report, highlighting key data points, performing a final analysis of the codes and themes, and linking the analysis to the research question and existing literature. Additionally, Braun and Clarke's (2006) 15-point checklist for effective thematic analysis was used to verify the analysis.

Table 1. Demographic Characteristics.

ID	Gender	Age	Position	Department	Exp. In Hotel
H1	M	45	Director	Marketing	25
H2	M	30	Supervisor	Finance	10
H3	F	42	Manager	Public Relations	22
H4	F	39	Manager	Front Office	19
H5	M	40	Manager	Human Resources	20
H6	M	23	Officer	Sales	3
H7	F	21	Trainee	Food & Beverage	1
H8	F	26	Waiter	Food & Beverage	6
H9	M	30	Supervisor	Food & Beverage	10
H10	M	33	Assistant Manager	IT	13
H11	M	28	Supervisor	Security	8
H12	F	50	Director	Front Office	30
H13	F	27	Officer	Front Office	7
H14	M	45	Executive	Housekeeping	25
H15	F	23	Chef	Kitchen	3
H16	M	27	Waiter	Food & Beverage	7
H17	F	22	Waitress	Food & Beverage	2
H18	F	29	Supervisor	Sales	9
H19	M	36	Manager	Sales	16
H20	F	29	Assistant Manager	Customer Relations	9

3.5. Findings

The findings and quotes reflect a broad range of hotel employees' perspectives on the Metaverse hotel, capturing the various strengths, weaknesses, opportunities, and threats as perceived by hotel employees.

Table 2. Coded theme.

Question	Title	Coded Theme (Frequency)
Q1	Strengths	Offer Immersive and Interactive Experiences (20) Enhance Operational Efficiency (15) Improve Guest Engagement (10) Offering New Training Opportunities (9)
Q2	Weaknesses	Concerns About Loss of Personal Interactions (20) Technical Challenges in Implementation (10) Potential Operational Disruptions (8) Incompetence with Metaverse Technologies (7) Potential Job Loss (8) Privacy Issue (8)
Q3	Opportunities	Differentiation from Traditional Hotels (15) Attracting New Market Segments (10) New Revenue Streams (7) Driving Overall Growth and Innovation (20)
Q4	Threats	Skepticism about the Value of Virtual Experience (10) Privacy and Security Concerns (15) Challenges in Adapting to Metaverse Technologies (18) Impact on Employment and Job Roles (12)

4. Discussions

4.1. Strength

Finding 1: The Metaverse is viewed as a groundbreaking innovation that offers immersive and interactive experiences, bridging the gap between physical and virtual environments. According to H5, "The Metaverse offers a new dimension for guest experiences, where virtual reality can create immersive environments that are both engaging and interactive." While H7 pointed out that "It's an exciting opportunity to transform traditional hotel experiences by offering virtual tours, interactive features, and immersive events."

Finding 2: Metaverse hotels are seen as a means to enhance operational efficiency and streamline hotel management through advanced technologies. As Metaverse hotels can streamline many operations, from virtual check-ins to automated guest services, which could lead to increased efficiency and reduced operational costs." While H10 stated that "With VR-based training and AR tools, we can make hotel management more efficient and less resource-intensive."

4.2. Weaknesses

Finding 3: Employees are concerned that Metaverse hotels may compromise the human touch that is fundamental to traditional hospitality experiences. As H6 mentioned, "I worry that Metaverse could make the guest experience feel too impersonal. Human connection is what really makes hospitality special." As H9 stated that "While virtual interactions can be innovative, they might lack the warmth and personal touch that guests expect from real-world hotel experiences."

Finding 4: Employees express concerns about the technical challenges and high costs associated with implementing Metaverse technologies in hotels. As H1 mentioned, "the costs and technical complexities of setting up and maintaining Metaverse technologies could be a significant barrier for many hotels." Similarly, H4 stated that "We face challenges with the integration of new technologies, including high upfront costs and potential technical issues that could affect operations."

4.3. Opportunities

Finding 5: Metaverse hotels are perceived as an opportunity for market differentiation and attracting new, tech-savvy customer demographics. According to H8: Metaverse hotels can stand out in the competitive market by offering unique virtual experiences that attract tech enthusiasts and younger generations." As H2 pointed out "This is a chance to tap into new market segments by offering innovative services that traditional hotels might not be able to provide."

Finding 6: There is potential for Metaverse hotels to generate new revenue streams through virtual events, digital upgrades, and exclusive online experiences. As H11pointed out "We see potential for new revenue streams through virtual events, premium digital experiences, and AR-guided tours that can add value beyond traditional hotel services."   While H12 commented that "The Metaverse offers opportunities for creating additional revenue through virtual product sales and exclusive online experiences for guests."

4.4. Threats

Finding 7: There is apprehension about guest acceptance and potential resistance to the concept of Metaverse hotels due to unfamiliarity with the technology. As H13 stated, "Guests might be skeptical about staying in a Metaverse hotel due to their unfamiliarity with the technology and concerns about its practicality."   Whole H14 mentioned that "There's a risk that some guests may not be comfortable with the concept of a virtual hotel, which could affect its overall success."

Finding 8: The adaptation of the hospitality industry to Metaverse technologies presents challenges such as resistance to change and the impact on traditional job roles. As H15 mentioned, "Adapting to new technologies might be met with resistance from both employees and guests who are used to traditional hotel experiences."   While H16 stated that "There is a concern that the rise of Metaverse hotels could lead to job displacement or significant changes in job roles in hotels."

5. Discussions and Conclusion

In this study, data obtained from in-depth interviews with 20 hotel employees were evaluated by thematic analysis.

5.1. Strengths from Hotel Staff Perspective

5.1.1. Offering Immersive and Interactive Experiences

Hotel employees perceive the primary strengths of Metaverse hotels as their ability to offer immersive and interactive experiences that traditional hotels cannot provide. These include virtual tours, virtual reality (VR)-based room previews, and augmented reality (AR)-enabled guest services. Virtual tours allow potential guests to explore the hotel's amenities and room options from the comfort of their homes, offering a unique preview experience that can enhance decision-making. VR-based room previews enable guests to visualize their stay, providing a sense of assurance about the accommodations. AR-enabled guest services can enhance the in-stay experience by providing real-time information and interactive guides through guests' mobile devices, creating a seamless and engaging service environment.

5.1.2. Improving Guest Engagement and Satisfaction

Metaverse hotels can engage guests in novel ways, such as through virtual social events, personalized VR experiences, and interactive digital art displays. Virtual social events can include live-streamed concerts, interactive workshops, and social mixers, providing unique and memorable experiences. Personalized VR experiences can be tailored to guests' preferences, offering activities such as virtual tours of local attractions or immersive relaxation sessions. Interactive digital art displays in the hotel can provide dynamic and changing environments, enhancing the aesthetic appeal, and creating a modern, sophisticated atmosphere. These innovations can lead to higher guest

satisfaction and loyalty by offering unique and memorable experiences that go beyond the traditional hotel stay.

5.1.3. Enhancing Operational Efficiency

Employees assert that Metaverse hotels can streamline operations through automation. AI-powered virtual concierges are capable of handling routine guest inquiries, such as check-in processes, room service requests, and local recommendations. This reduction in workload allows human staff to concentrate on personalized guest interactions. Additionally, VR training modules provide staff with the opportunity to prepare for various scenarios in a simulated environment, thus improving their preparedness and response times without the need for physical resources.   Virtual tools further simplify routine tasks. For instance, AR maintenance applications assist in the rapid identification and resolution of issues by overlaying digital information onto physical objects. This technology enables maintenance staff to promptly locate problems and access repair instructions, thereby minimizing delays. These tools reduce the time and effort required for daily tasks, allowing employees to focus on higher-value activities and enhancing overall operational efficiency.   By embracing these innovative technologies, Metaverse hotels can significantly streamline operations. Furthermore, equipping employees with advanced skills and tools enables them to excel in their roles, thereby fostering a more efficient and effective hospitality environment.

5.1.4. Offering Professional Development Opportunities in Metaverse Hotels

Employees anticipate that Metaverse hotels will offer significant opportunities to learn and master new technologies, such as VR and AR systems. This training can enhance their skill set, increasing their value in the job market. Training programs may cover technical aspects of VR/AR equipment, virtual environment management, and the creation and curation of immersive guest experiences. These skills have broad applicability, extending beyond the hotel industry to other tech-driven sectors. Consequently, employees trained in these technologies may find new career opportunities in various fields, highlighting the broader professional development benefits of working in Metaverse hotels.

5.2. Weaknesses from Hotel Staff Perspectives

5.2.1. Concerns About Loss of Personal Interactions

Employees express concerns that the virtual nature of Metaverse hotels might diminish the personal touch essential to hospitality. They worry that guests might miss the warmth and friendliness of face-to-face interactions. The essence of hospitality often lies in the ability to make guests feel welcomed and valued through direct, personal engagement. Employees fear that while virtual concierges and automated services offer efficiency, they could create a colder, less personable atmosphere, potentially leading to a decline in guest satisfaction and loyalty. Many employees emphasize that personal interactions are critical for creating memorable guest experiences. They believe that the smiles, gestures, and genuine conversations that occur in person significantly contribute to a guest's positive experience. There is a concern that over-reliance on virtual interactions could lead to a more impersonal and less welcoming environment. Employees argue that the human touch is irreplaceable and crucial for handling complex guest needs, resolving issues with empathy, and providing personalized recommendations that create unique and cherished memories for guests.

5.2.2. Technical Challenges in Implementation

Employees foresee several technical challenges, including the need for robust internet infrastructure to support high-bandwidth VR/AR applications. High initial costs for VR/AR equipment and software are another major concern, as these technologies require significant investment. There is also the potential for technical glitches and system failures that could disrupt

guest experiences, leading to dissatisfaction and negative reviews. Employees worry about the reliability of these technologies and the potential impact on the hotel's reputation if problems arise.

5.2.3. Potential Operational Disruptions

Integrating Metaverse technologies into existing hotel operations presents significant challenges. Employees highlight concerns about the complexity of training staff to use new technologies and ensuring a seamless integration of virtual and physical aspects of the hotel. This process requires careful planning and execution to avoid operational disruptions. Employees are particularly concerned about maintaining the quality of service during the transition period and ensuring that new technologies complement rather than complicate their work processes. Effective integration is essential to enhance, rather than hinder, overall operational efficiency and guest satisfaction.

5.2.4. Staff Incompetence with Metaverse Technologies

Staff emphasize the necessity of comprehensive training programs to effectively manage new technologies. Many express concerns about their ability to adapt to these new tools and systems, fearing they might struggle to deliver the same level of service without proper training. Effective training programs should include hands-on practice, ongoing support, and regular updates on the latest technological advancements. This approach ensures all staff members are confident and proficient in using Metaverse technologies, thereby maintaining high standards of service.

5.2.5. Apprehensions Regarding Job Security Amid Automation in Metaverse Hotel

Staff express significant apprehensions about potential job losses due to automation and the use of digital avatars. They are concerned that their roles might be diminished or replaced by technology, leading to job insecurity. While automation can increase efficiency, it also poses a threat to employment, particularly for tasks that can be easily automated. Employees fear that the shift towards Metaverse hotels could prioritize technology over human workers, resulting in layoffs or reduced hours. This anxiety stems from the belief that as hotels adopt more advanced technologies, the need for human intervention in routine tasks will decrease, potentially rendering many positions obsolete.

5.2.6. Privacy, Security, and Health Concerns

Staff attitudes toward Metaverse hotels are complex and multifaceted. Some employees are skeptical or wary of Metaverse due to concerns about privacy and security. The use of VR/AR technologies involves collecting and processing large amounts of personal data, raising concerns about data protection and the potential for breaches. Additionally, there are worries about the potential for addiction or negative impacts on mental health from excessive use of immersive technologies. While it is not necessary for all staff to have a deep understanding of Metaverse technology, a basic understanding of these issues and the measures in order to address them can help alleviate concerns. This knowledge can foster a more positive attitude towards the adoption of Metaverse technologies in hotels.

5.3. Opportunities from Hotel Staff Perspectives

5.3.1. Differentiation and Revenue Potential of Metaverse Hotels

Employees believe that Metaverse hotels can significantly differentiate themselves by offering unique experiences unavailable in traditional hotels. This includes hosting virtual reality (VR) events, digital art exhibitions, and interactive simulations that cater to tech-savvy guests. VR events can range from virtual concerts and conferences to immersive storytelling sessions, engaging guests in novel and exciting ways. Digital art exhibitions can transform hotel spaces into dynamic galleries featuring contemporary art enhanced by augmented reality (AR) to create interactive experiences.

Interactive simulations can offer activities such as virtual escape rooms, historical recreations, or virtual travel experiences, allowing guests to explore new worlds without leaving the hotel.   The incorporation of Metaverse technologies, including elements of VR and AR, can significantly enhance the guest experience by creating interactive and personalized environments. These innovations are particularly appealing to tech-savvy guests who seek cutting-edge experience. Furthermore, these technological advancements attract younger travellers and business professionals who are increasingly drawn to hotels offering advanced digital amenities and unique interactive features.

The differentiation offered by Metaverse hotels extends beyond merely attracting a new demographic of guests. These technologies also enable the creation of entirely new revenue streams, thereby offering economic benefits that traditional hotels might find challenging to replicate. For instance, virtual event hosting within the Metaverse allows hotels to cater to global audiences, eliminating geographical constraints and significantly expanding their market reach. This capability is particularly beneficial for business conferences, workshops, and other events that require extensive coordination and participant engagement.   Additionally, hotels can offer VR room upgrades, providing guests with enhanced experiences that justify higher room rates. This can include VR simulations of different environments or customized themes that align with guest preferences. Moreover, AR-guided tours represent another innovative revenue stream, allowing guests to engage in interactive and informative explorations of the hotel's amenities and surrounding attractions. These tours can be tailored to provide personalized recommendations and insights, enriching the guest experience and encouraging longer stays. The use of AR technology in this context not only enhances the guest's stay but also provides opportunities for cross-promotional activities with local businesses and attractions, fostering community engagement and collaboration.

5.3.2. Appeal of Metaverse Hotels to Tech-Oriented and Business Travelers

Metaverse hotels have the potential to attract younger, tech-oriented guests who are interested in innovative and immersive experiences. This demographic often comprises early adopters of new technologies, actively seeking unique, cutting-edge experiences that Metaverse hotels can provide. Additionally, Metaverse hotels can appeal to business travelers looking for advanced amenities. Business travelers may benefit from VR-enabled meeting rooms, virtual networking events, and AR-guided tours of local attractions. These features offer convenient and sophisticated solutions for both work and leisure, enhancing their overall travel experience.   By appealing to these new market segments, Metaverse hotels can broaden their customer base and enhance their market presence. This strategic focus on tech-savvy younger guests and business travelers' positions Metaverse hotels as leaders in the evolving hospitality landscape.

5.3.3. New Revenue Streams

Metaverse hotels can diversify their revenue streams through several innovative offerings. Virtual event hosting allows organizations and individuals to conduct conferences, workshops, or social events in immersive virtual environments, appealing to a broad audience seeking unique meeting experiences. VR room upgrades offer guests enhanced experiences such as themed rooms, virtual reality gaming setups, or virtual spa treatments, catering to those willing to pay for elevated accommodations. AR-guided tours provide personalized and interactive explorations of the hotel's amenities, local attractions, or historical sites, enhancing guest engagement and entertainment value. These offerings not only attract guests seeking novel experiences but also increase the hotel's revenue potential by offering premium services and experience.

5.3.4. Driving Overall Growth and Innovation

Employees perceive Metaverse hotels as trailblazers in the hospitality industry, driving growth and innovation on a broad scale. By establishing new benchmarks for guest experiences, they have the potential to inspire other hotels to adopt similar technologies, thereby advancing the industry as

a whole. The integration of Metaverse technologies can catalyze innovation across hospitality, prompting hotels to explore novel approaches to enhancing guest experiences and optimizing operational efficiency. This pioneering role not only positions Metaverse hotels as leaders but also garners media attention and industry acclaim, reinforcing their reputation as innovators in hospitality. By contributing to the overall modernization and expansion of industry, Metaverse hotels play a pivotal role in shaping the future of hospitality. Their efforts ensure the industry's continued relevance in an increasingly digital world, setting precedents for how hotels can leverage technology to meet evolving guest expectations and preferences.

5.4. Opportunities from Hotel Staff Perspectives

5.4.1. Skepticism about the Value of Virtual Experience

Employees express concerns that some guests may hesitate to stay in Metaverse hotels due to various factors including unfamiliarity with technology, potential discomfort with VR, and skepticism about the value of virtual experiences. Many guests may lack prior experience with VR or AR technologies, which could make the concept intimidating or overwhelming for them. Additionally, concerns about motion sickness or discomfort when using VR headsets may deter guests from fully enjoying their stay. Moreover, skepticism about the value of virtual experiences compared to traditional, tangible ones presents another challenge. Guests may question whether the virtual enhancements justify the potentially higher costs associated with staying in a Metaverse hotel.

5.4.2. Challenges in Adapting to Metaverse Technologies

The hospitality industry faces several challenges in adapting to Metaverse technologies, including resistance to change, high costs of technology adoption, and the need for continuous updates and maintenance of VR/AR systems. Resistance to change may arise from both employees and management who are accustomed to traditional operating methods. Overcoming this resistance necessitates clear communication about the benefits of Metaverse technologies and the provision of comprehensive training and support to facilitate smooth integration. The high cost of adopting technology presents another significant challenge. Implementing VR/AR systems involves substantial investment in hardware, software, and infrastructure. Moreover, these technologies require ongoing maintenance and updates to ensure they remain functional and current, which can strain resources and budgets.

5.4.3. Impact on Employment and Job Roles

Employees express concerns that the introduction of Metaverse technologies could potentially lead to job displacement or changes in job roles within the hospitality industry. While new positions related to technology, such as VR experience designers or AR maintenance technicians, may emerge, there is apprehension that traditional roles, such as front desk staff or concierges, could diminish or be replaced by virtual assistants and automated systems. This shift raises uncertainties among existing staff about their job security and future roles within their organizations. The advent of Metaverse hotels introduces a transformative potential in the hospitality industry, leveraging VR and AR technologies to redefine guest experiences and operational efficiency. This study reveals the multifaceted perspectives of hotel employees in Hong Kong regarding these innovative developments, offering insights into both the promising opportunities and significant challenges.

6. Recommendations

6.1. Recommendations for Guest Acceptance and Industry Adaptation of Metaverse Technologies

Guest acceptance of Metaverse hotels is pivotal for their success in the hospitality industry. Several key factors influence this acceptance, including concerns about privacy, security, and the unfamiliarity associated with VR/AR technologies. Guests may be hesitant to engage with Metaverse

offerings due to worries about data protection and unauthorized access to personal information (Webster & Ivanov, 2020). To address these concerns, hotels should prioritize transparent communication about their data protection measures, providing clear information to build trust and reassure guests about their privacy. Furthermore, ensuring a seamless and intuitive user experience is essential to foster guest acceptance. The complexity of VR/AR technologies can be daunting for some users, highlighting the need for hotels to design user-friendly interfaces and experiences. Comprehensive onboarding processes, user guides, and robust customer support can help guests navigate these technologies effectively, enhancing their comfort and confidence in using VR/AR systems. From an industry perspective, rapid technological evolution poses challenges that require agility and adaptation from the hospitality sector. Continuous updates and maintenance of VR/AR systems are necessary to keep up with technological advancements and ensure operational efficiency. While Metaverse technologies offer opportunities to enhance guest experiences and streamline operations, their implementation demands significant investment in infrastructure and staff training. Moreover, maintaining the human touch in service delivery remains paramount. While VR/AR can enrich guest experiences, the personal interactions that define exceptional hospitality must not be overlooked. Balancing technological innovation with personalized service is crucial for ensuring guest satisfaction and loyalty in Metaverse hotels. To effectively integrate Metaverse technologies into hospitality operations, it is essential to understand employee perspectives. Exploring their views on the benefits and challenges of VR/AR integration can provide valuable insights for developing comprehensive strategies. These strategies should prioritize effective training and support programs to equip staff with the necessary skills and knowledge. By aligning technological advancements with personalized service, hotels can enhance guest experiences and ensure a seamless transition towards Metaverse technologies in the hospitality industry.

6.2. Strategic Integration of Advanced Technologies in Hospitality

The adoption of advanced technologies in hospitality promises substantial benefits, particularly in enhancing guest experiences. VR and AR technologies, for example, offer immersive and personalized interactions that enrich stays by providing interactive previews of hotel amenities and local attractions. These innovations also streamline operational processes, improving efficiency through automated check-in systems, smart room controls, and AI-driven customer service robots, thereby boosting guest satisfaction. Moreover, embracing cutting-edge technologies can give hotels a competitive edge by appealing to tech-savvy clientele seeking unique and sophisticated experiences. However, integrating these technologies presents significant challenges. One primary obstacle is technology acceptance, both among guests and hotel staff, who may hesitate due to concerns about privacy, security, and usability. Clear communication about the benefits and security measures is crucial to allaying these fears. Staff readiness is equally vital, necessitating comprehensive training programs to ensure proficiency in operating and troubleshooting advanced systems. Financial considerations also loom large, with high initial costs for acquisition and implementation, alongside ongoing expenses for maintenance and updates. Hotels must carefully assess return on investment and allocate resources strategically to ensure that the benefits outweigh the costs. Successfully navigating these challenges requires a holistic approach. This includes providing thorough training for staff, developing user-friendly interfaces for guests, and implementing continuous feedback mechanisms to facilitate adaptation and improvement. Phased implementation allows hotels to integrate new systems gradually, minimizing disruptions to existing operations and enabling adjustments based on real-world experiences. Collaboration with technology providers further enhances the adoption process by ensuring access to the latest innovations and support services. To sum up, by addressing issues surrounding technology acceptance, financial implications, and seamless integration, hotels can effectively harness the potential of advanced technologies to innovate within the hospitality industry. This strategic approach not only enhances guest experience and operational efficiency but also positions hotels as leaders in hospitality innovation.

6.3. Balancing Technological Integration with Human Touch in Metaverse Hotels: A Hybrid Approach

Achieving a harmonious balance between technological integration and human interaction is crucial in the context of Metaverse hotels. Implementing a hybrid model that combines virtual and physical elements allows for the maintenance of the personal touch essential to hospitality. Virtual concierges, for instance, can efficiently handle routine tasks such as check-ins, providing information, and making reservations, thereby allowing human staff to concentrate on more intricate and personalized interactions. This approach ensures that guests receive prompt service without compromising the warmth and hospitality inherent in traditional hotel experiences. While digital advancements hold considerable potential for enhancing user experiences within the hospitality industry, the human touch remains an irreplaceable aspect of service delivery. Striking a harmonious balance between technology and personal service is indispensable for ensuring guest satisfaction and fostering loyalty. By strategically integrating technology to complement rather than supplant human interactions, hotels can offer guests optimal benefits, efficient services coupled with personalized care. This hybrid approach is pivotal for the future prosperity of the hospitality sector as it navigates the challenges of technological integration and responds to evolving guest expectations.

6.4. Enable Employee Transition in Metaverse Hotels by Implementing Training Program and Job Redefinition

Offering retraining and upskilling programs is crucial for helping employees transition to new tech-related roles. These programs should focus on developing skills in VR/AR system management, digital content creation, and technical support. Comprehensive retraining should include hands-on practice, theoretical knowledge, and ongoing support to ensure effective adaptation to these new roles. By investing in employee development, hotels can ensure their staff are capable of leveraging new technologies to enhance guest experiences. Developing robust training programs is essential to ensure staff can effectively utilize new technologies while maintaining high standards of personal interaction. These programs should cover technical aspects of VR/AR systems and emphasize the importance of personal engagement. For example, staff should learn to use VR/AR for personalized recommendations and unique guest experiences that complement face-to-face interactions. This approach ensures technology enhances rather than replaces guest interactions. Redefining job roles to incorporate both traditional and tech-based responsibilities can alleviate concerns about job security. Employees should be involved in this process to ensure their expertise is valued. For instance, front desk staff can manage both in-person check-ins and virtual concierge services, combining customer service skills with technological capabilities. This approach ensures employees continue playing vital roles and their contributions are recognized. Employees may worry that technological advancements could replace tasks or roles, leading to uncertainties about their future. Addressing these concerns through transparent communication, skill development, and emphasizing technology's complementary role alongside human expertise is crucial for fostering a supportive organizational culture.

6.5. Maintain Open Communication and Ensure Feedback Mechanisms

Maintaining open communication with staff about changes and developments is crucial for fostering a sense of ownership and reducing resistance to change. Regularly updating employees on Metaverse technology implementation, addressing their concerns, and involving them in decision-making processes are essential strategies. By keeping staff informed and engaged, hotels can create a collaborative environment where employees feel supported and motivated to embrace new technologies. Establishing robust feedback mechanisms is also essential for understanding guest experiences and continuously improving service delivery. Regular surveys and feedback forms should ask guests about their experiences with both virtual and personal interactions. Analyzing this feedback helps identify areas for improvement and ensures the balance between technology and human touch is optimized. Guest feedback provides valuable insights into the most appreciated

aspects of the Metaverse hotel experience and where adjustments are needed. Continuing to explore the perspectives of guests, investors, and other stakeholders is crucial for a comprehensive understanding of Metaverse hotels' implications. Regularly gathering feedback from these groups through surveys, focus groups, and interviews, and incorporating their insights into strategic planning, allows hotels to balance technological advancements with the needs and expectations of their guests and staff.

6.6. Enhancing Guest Acceptance Through Educational Campaigns and Trial Experiences

Launching educational campaigns can effectively address guest concerns about unfamiliar technology while highlighting the unique benefits of staying in a Metaverse hotel. Utilizing multimedia content, such as videos, virtual tours, and interactive guides, can demonstrate how VR/AR technologies enhance the guest experience. These campaigns should be disseminated through the hotel's website, social media channels, and during the booking process. They must be engaging and easy to understand, showcasing the value and excitement of the Metaverse experience. Providing trial experiences or demo versions of VR/AR services can further familiarize guests with the technology. Offering opportunities for guests to try out VR headsets or AR apps before booking a room, either through in-person demonstrations at the hotel or virtual demos online, can be particularly effective. Trial experiences allow guests to firsthand experience the benefits and enjoyment of technology, thereby reducing skepticism and building enthusiasm.

6.7. Privacy and Security Assurance

Addressing privacy and security concerns is paramount for gaining guest trust in Metaverse hotels. It is essential to clearly communicate the measures in place to protect personal data and ensure the safe use of VR/AR technologies. This includes detailed information on data encryption, secure storage practices, and regular security audits. Providing guests with comprehensive information about these measures, both at the time of booking and during their stay, can help build trust and confidence in the hotel's commitment to safeguarding their personal information.

6.8. Investing in Robust Internet Infrastructure and High-Quality VR/AR Equipment

Investing in robust internet infrastructure and high-quality VR/AR equipment is crucial for ensuring seamless and reliable guest experiences in Metaverse hotels. This includes upgrading Wi-Fi networks to support high-bandwidth applications, installing state-of-the-art VR/AR systems, and ensuring that all equipment is regularly maintained and updated. Reliable technology is the backbone of Metaverse hotels, and any technical failures can significantly impact guest satisfaction. Establishing a system for continuous updates and maintenance of VR/AR systems is necessary to keep up with technological advancements and prevent technical glitches. This involves scheduling regular software updates, performing routine hardware maintenance, and staying informed about the latest developments in VR/AR technology. By keeping systems up-to-date, hotels can ensure that guests have access to the best possible experiences and that any potential issues are addressed proactively. Through these strategies, hotels can effectively support their employees during the transition to Metaverse technologies, ensuring both technological advancement and the preservation of a committed and capable workforce while enhancing guest experiences and satisfaction.

6.9. Leveraging Partnerships and Research for Successful Integration of Metaverse Technologies in Hotel

Partnering with technology firms specializing in VR/AR can provide hotels with access to cutting-edge expertise and innovative solutions. These partnerships enable hotels to remain at the forefront of technological advancements and offer state-of-the-art experiences to guests. Collaborations with tech firms also facilitate opportunities for staff training and support, ensuring that hotel employees are proficient in using and maintaining new technologies. Furthermore, such partnerships can lead to joint marketing efforts that highlight the innovative offerings of Metaverse

hotels. Forming alliances with other hotels and industry stakeholders can promote knowledge sharing, best practices, and resource pooling related to Metaverse technologies. Collaborative efforts can help standardize the implementation of VR/AR in the hospitality industry, ensuring that all hotels benefit from shared experiences and innovations. These partnerships can also result in joint marketing initiatives, showcasing the collective advancements of the industry and attracting a broader audience. Conducting ongoing research is essential for assessing the long-term impacts of Metaverse technologies on guest satisfaction, operational efficiency, and employee roles. Regular analysis of data on guest experiences, staff performance, and financial outcomes is necessary to identify trends and areas for improvement. These insights should guide future developments and innovations, ensuring that Metaverse hotels continue to evolve and meet the needs of both guests and employees. By maintaining a commitment to research and collaboration, the hospitality industry can effectively integrate Metaverse technologies and achieve sustained success.

7. Conclusions

The introduction of Metaverse hotels holds significant potential to revolutionize the hospitality industry by offering innovative and immersive experiences that appeal to a new generation of tech-savvy guests. However, the successful implementation of these technologies necessitates careful consideration of the associated challenges and concerns. Balancing technological advancements with maintaining personal interactions is crucial (Miller, Kong & Oh, 2025) to preserving the essence of hospitality. Effectively addressing the technological, operational, and human aspects will determine the feasibility and success of Metaverse hotels. By implementing the recommendations outlined in this study, Metaverse hotels can navigate the complexities of technological integration while leveraging their strengths to create unique, engaging, and memorable guest experiences. This approach will ensure sustainable growth and innovation in the hospitality industry, positioning Metaverse hotels as leaders in the future of hospitality.

7.1. Strengths and Opportunities

Metaverse hotels present a remarkable opportunity for market differentiation and business growth. Employees recognize the potential to offer unique experiences that traditional hotels cannot, such as virtual reality events, digital art exhibitions, and interactive simulations. These offerings cater to tech-savvy guests and younger demographics, providing immersive and engaging experiences that set Metaverse hotels apart from their conventional counterparts. Furthermore, Metaverse technologies can create new revenue streams through virtual event hosting, VR room upgrades, and AR-guided tours, attracting guests willing to pay a premium for novel experiences. By pioneering these innovations, Metaverse hotels can drive industry-wide growth and set new standards for guest experiences, influencing other hotels to adopt similar technologies and fostering overall industry advancement.

7.2. Weaknesses and Threats

Despite these promising strengths, significant concerns and challenges remain. One major weakness is the potential loss of personal interactions that are essential in hospitality. Employees worry that the virtual nature of Metaverse hotels might diminish the warmth and friendliness of face-to-face interactions, leading to a more impersonal environment. Additionally, the technological challenges in implementing Metaverse technologies are considerable. The need for robust internet infrastructure, high initial costs for VR/AR equipment, and the potential for technical glitches pose significant barriers to successful integration. Employees also express concerns about their ability to adapt to new technologies, the necessity for comprehensive training programs, and the potential impact on job security. The fear of job displacement or changes in traditional roles adds to the apprehension about the widespread adoption of Metaverse technologies. By addressing these concerns and strategically managing the integration of Metaverse technologies, hotels can mitigate

risks and maximize the benefits of innovation. Continuous research, collaboration with technology partners, and investment in employee training and development are critical to achieving this balance. Ultimately, Metaverse hotels can lead the way in transforming the hospitality industry, offering unparalleled guest experiences while maintaining the personal touch that defines exceptional service.

7.3. Limitations and Future Studies

The findings of this study should be interpreted with caution due to the limited sample size, which constrains the generalizability of the results to a broader population. Additionally, participant-related variables such as gender, work experience, social influence, and technology acceptance were not accounted for. The research was conducted over a relatively short period, which may not adequately capture the long-term effectiveness of Metaverse hotels.

Future research should therefore investigate the efficacy of Metaverse technology in diverse contexts and among various types of hotel staff. This could include examining the impact of Metaverse technology on hotel employees from different age groups, cultural backgrounds, and educational levels. Furthermore, it is crucial to explore how Metaverse hotels influence revenue and assess the potential for scalability and sustainability of Metaverse technology within the hotel industry.

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